Name:

at1119paper: Complete the Square, b = odd (v505)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 47x = -396$$

Add $\left(\frac{-47}{2}\right)^2$, which equals $\frac{2209}{4}$, to both sides of the equation.

$$x^2 - 47x + \frac{2209}{4} = \frac{625}{4}$$

Factor the left side.

$$\left(x + \frac{-47}{2}\right)^2 = \frac{625}{4}$$

Undo the squaring.

$$x + \frac{-47}{2} = \frac{-25}{2} \quad \text{or} \quad x + \frac{-47}{2} = \frac{25}{2}$$

$$x = \frac{47 - 25}{2} \quad \text{or} \quad x = \frac{47 + 25}{2}$$

$$x = 11 \quad \text{or} \quad x = 36$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 33x = 1798$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 31x \;=\; 1092$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 45x \;=\; -164$$